



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/616,562      | 07/10/2003  | Makoto Nishiji       | Nishiji 07/03       | 2796             |

20808 7590 11/02/2004

BROWN & MICHAELS, PC  
400 M & T BANK BUILDING  
118 NORTH TIOGA ST  
ITHACA, NY 14850

EXAMINER

HO, HA DINH

ART UNIT PAPER NUMBER

3681

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/616,562 | <b>Applicant(s)</b><br>NISHIJI, MAKOTO |  |
|                              | <b>Examiner</b><br>Ha D. Ho          | <b>Art Unit</b><br>3681                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-51 is/are pending in the application.  
     4a) Of the above claim(s) 1-19 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 38-51 is/are allowed.
- 6) ☒ Claim(s) 20-27 and 33-37 is/are rejected.
- 7) ☒ Claim(s) 28-32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/10/03</u> | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This is the first Office Action on the merits of Application No. 10/616,562 filed on 7/10/03. Claims 1-51 are currently pending.

#### *Election/Restrictions*

2. Applicant's election of the invention of group 2 and species of Figure 5, claims 20-51, in the reply filed on 9/15/04 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. Claims 1-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and/or species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/15/04.

#### *Drawings*

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations of "the internal tooth side gear is connected to the front output shaft, and the external tooth side gear is connected to the rear output drive shaft" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Note that the elected Figure 5 shows the internal tooth side gear is connected to the rear, not front, output shaft, and the external tooth side gear is connected to the front, not rear, output drive shaft

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing

Art Unit: 3681

sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 33 recites the limitation "the front propshaft" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 3681

A person shall be entitled to a patent unless –

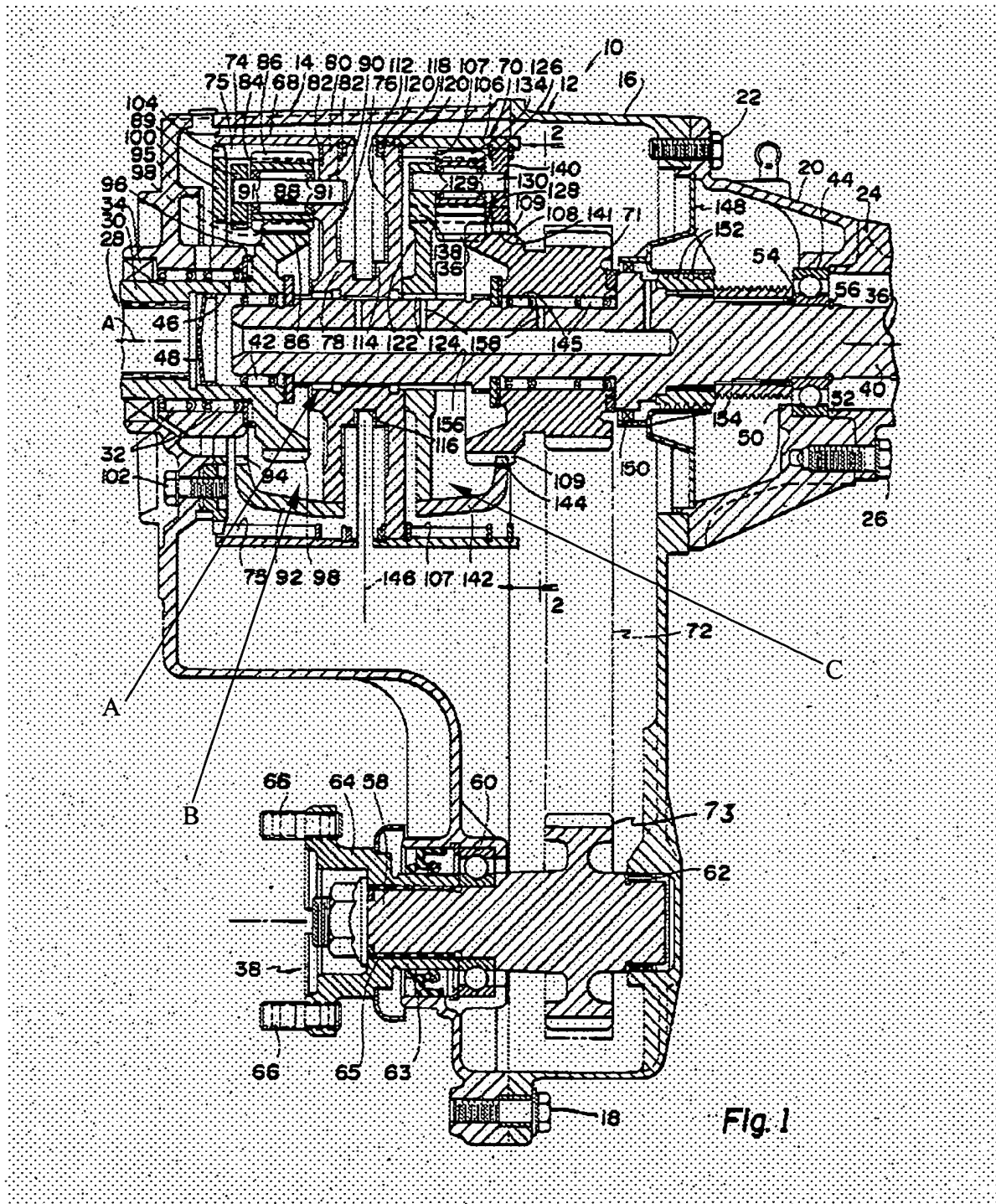
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 20-27, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Batchelor (US 4,644,822).

Batchelor teaches an interaxle drive system comprising a transfer case (10) connecting an input drive shaft (30) to concentric front (i.e., the shaft portion between the sun gear 108 and the sprocket 71) and rear (40) output drive shafts; front and rear axles (inherent); a housing (12) including a front end (left), a rear end (right) and a lateral extension (middle); a drive connection (sprocket and chain); a planetary gear unit (68) including sun (96), ring gear (74) and planet gears (84); a single-pinion differential gear unit (70) including internal (106) and external (108) tooth side gears, and pinion gears (126, 128); a common carrier (76) mounted for rotation on a bearing (A) (see the Figure on next page) supported by the transfer case housing (note that the housing 12 supports the shaft 40, which supports the bearing A); rear (36) and front (38) propshafts; the drive connection including a sprocket (71) rotatively supported by the common carrier (note that the carrier 76 includes a portion 140 that supports the sprocket 71 via the gear meshing between teeth 109 and 108); the internal tooth side gear (106) connected to the rear output shaft (40) (note that the ring gear 106 is connected to the carrier portion 140, which is connected to the carrier portion 138, which is connected to the shaft 40); the external tooth side gear (108) connected to the front output shaft; a pitch radius of the internal tooth side gear be larger than a pitch radius of the external tooth side gear by an amount approximately equal to a common pitch diameter of the pinion gears (126 and 128); the rear output drive shaft mounted within the front output drive shaft and passes through a center of the external tooth side gear; the common carrier including a

Art Unit: 3681

first set of pockets (B) and a second set of pockets (C); the ring gear (74) alternately engaged with the transfer case (through the plate 100).



***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelor (US 4,644,822) in view of Wilson et al (US 5,655,986).

Batchelor does not specify the teeth shape of the gears of the differential and planetary gear units to be helical.

The gear components of the differential/planetary gear unit in a transfer case being helical is old and well known in the art. For example, Wilson et al show a transfer case having a differential/planetary gear unit (68) including helical teeth sun, ring and planet gears (72, 74, 76).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the teeth of the gear components of the differential/planetary gear units of Batchelor to be helical in view of Wilson et al since Batchelor leaves it up to one having ordinary skill in the art to select any existing gear teeth shape to make the gear components of the differential/planetary gear units, and that the helical teeth of the gear components of the differential/planetary gear units is old and well known in the art.

***Allowable Subject Matter***

12. Claims 38-51 are allowed.

Art Unit: 3681

13. Claims 28-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claims 33 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or render obvious a motivation to provide for an interaxle transfer case as defined by the limitations of claim 38; including a common carrier having an outer shell for conveying drive power from the planetary gear unit around an outside of the internal tooth side gear to the mounting for the pinion gears of the differential gear unit.

#### ***Cited Prior Art***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Eastman et al'873, Brown et al'204, Brown et al'731, Namioka'956, Williams'986 which each shows a transfer case having 2 planetary gears, one input and two output shafts.

#### ***Communication***

17. Submission of your response by facsimile transmission is encouraged. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9326 for regular communications and (703) 872-9327 for After Final communications. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of



Art Unit: 3681

correspondence not permitted by facsimile transmission, see M.P.E.P. 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check should not be submitting by facsimile transmission separately from the check. Responses submitted by facsimile transmission should include a Certificate of Transmission (M.P.E.P. 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to  
the Patent and Trademark Office on \_\_\_\_\_

(Date)

Typed or printed name of person signing this certificate:

\_\_\_\_\_

(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and M.P.E.P. 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Examiner Ho whose telephone number is (703) 305-0738. The examiner can normally be reached on Monday-Friday from 7:30 A.M. to 5:00 P.M. Eastern Standard Time. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Mr. Charles Marmor, can be reached at (703) 308-0830. Any inquiry of a general nature or relating to the status of this application or proceeding should directed to the Group receptionist whose telephone number is (703) 308-2168.

HDH  
(703) 305-0738  
October 28, 2004

*He Ho*  
**HAHO**  
**PRIMARY EXAMINER**  
Art Unit 3681 10/28/04